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times as though to come thoroughly into contact with the seminal fluid. Then it passes quietly along the common duct until that is joined by the Y-shaped duct from which the granular yellowish fluid from the vitellaria is churned, as it were, into the oviduct and comes into contact with the ovum surrounding and adhering to it. Continuing on its course the ovum passes into the wider ootype. Here by a vermicular moulding process the yolk is arranged round the ovum and the form of the egg begins to appear. From the ootype, when properly shaped, it passes along to the muscular portion of the uterine canal, which receives the openings of the shell gland. In *Microcotyle Stenotomi* the shell gland appears to be formed of a single mass of cells, the duct from which opens by a wide mouth into the uterus at this point. Generally, however, it is arranged as a mantle of cells about the first portion of the uterus opening by numerous perforations from which exude a chitinous fluid which becomes evenly smeared over the surface of the egg and forms the shell. The egg is now completed with the exception of the long chitinous filaments which are formed by the contractions of the uterus on the soft material. The completed egg passes along into the more distal part of the uterus, where it remains until the worm is ready to deposit it. For this purpose it proceeds to prepare by seizing with its anterior or oral suckers a piece of the gills, but in the case observed under the microscope a bit of waste material was fastened upon because it was convenient. The caudal disc of suckers was also fastened to some support, so that the body was slightly extended. Then a waving motion began, the waves traveling toward the anterior part from the caudal end of the body. After this had lasted for a few seconds the worm began to lash itself up and down, still retaining its hold on the débris to assist its muscular exertions. After the first lashing effort a portion of the anterior coiled filament appeared at the genital aperture; after a short rest a further violent expulsive effort occurred and the pointed end of the egg appeared externally. This was followed by another rest and then

a still more violent expulsive effort which shot the egg against the waste material, where it remained fastened. The whole process was repeated after another short rest, until five eggs were laid, when a long rest ensued and the observation ended.

The process of laying the eggs occupied, all told, probably not more than a minute, but it was striking to see the display of some sort of intelligence by the worm in preparing for the expulsive efforts by seizing the waste material as a fixed point from which to pull.

Although this process of conjugation, fertilization and egg-laying could be directly observed only in this transparent form, it seems entirely probable that it is the same in all the microcotylidæ.¹

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ANTHROPOLOGY AT THE CLEVELAND MEETING

THE annual meeting of the American Anthropological Association was held at the Case School of Applied Science, Cleveland, Ohio, December 30, 1912, to January 2, 1913, in affiliation with Section H of the American Association for the Advancement of Science and the American Folk-Lore Society. In the absence of President Fewkes, Drs. Dorsey, Wissler and MacCurdy each presided at the various sessions. President Lomax, of the Folk-Lore Society was also absent, his place being taken by Dr. Charles Peabody, who read the presidential address.

SECTION H

Members of the sectional committee present: G. T. Ladd, E. L. Thorndike, W. V. Bingham, G. G. MacCurdy.

Officers for the Cleveland meeting were named as follows: member of the council, Dr. Clark Wissler; member of the general committee, Dr. Charles Peabody. Sectional offices were filled by the nomination and election by the general committee of Professor W. B. Pillsbury, University of Michigan, as vice-president for the ensuing year; Professor George Grant MacCurdy, Yale

¹ The above observations were made at the Laboratory of the U. S. Fish Commission at Woods Hole, Mass.

University, secretary to serve five years; and Professor R. S. Woodworth, Columbia University, member of the sectional committee to serve five years.

The question of a change of name from Section H, Anthropology and Psychology, to read "Section H, Anthropology," raised at the Washington meeting came up for discussion, and the sectional committee recommended that the name remain unchanged for the present.

ADDRESSES AND PAPERS

The address of the retiring vice-president of Section H, Professor George Trumbull Ladd, on "The Study of Man," is printed in this issue of SCIENCE. In the absence of President John A. Lomax, of the American Folk-Lore Society, his address on "Stories of an African Prince" was read by Dr. Charles Peabody. Some of the important papers read at the joint meeting are represented in this report by abstracts:

The Ceremonial Schemes of Certain Plains Indian Tribes: CLARK WISSLER.

Anthropology being essentially a science of culture, one of its necessary concerns is the distribution of cultural traits. In the distribution of such traits we have a complex problem, one of the first steps in whose solution is the description of each culture as found. The next and most interesting step is a comparative examination of these cultures. Were cultural traits all objective, this would be fairly simple, as is the case in many aspects of material culture; but many important traits are not very objective, especially those of a religious, ethical and social nature. When we come to compare religious conceptions of certain Plains tribes, we find a peculiar difficulty. First we are struck by the apparent absolute differences and the absence of all exact parallels. On closer inspection, however, we do find many units or subordinate traits that are exact parallels. It became necessary therefore to develop methods of handling this comparative problem.

It was noted that some tribes seem to have definite ceremonial schemes. The particular schemes for the Dakota, Blackfoot and Menominee were outlined and characterized as general patterns according to which almost every ceremonial was fashioned. The inference here is that if a tribe should take over a new ceremony the tendency would be to work it over into the tribal pattern. Examples of such making over of borrowed ceremonies were cited. The suggestion then is

that in the comparative study of these tribal ceremonies allowance must be made for the deliberate change of pattern and evidences of contact sought in parallel units of a more detailed character.

Notes on Eastern Sioux Dances: ROBERT H. LOWIE.

The Santee, Wahpeton and Sisseton, though differing somewhat among themselves, shared a number of dances with the Plains tribes to the west, where these dances are usually practised by military societies. Among the Eastern Sioux, however, it is exceedingly difficult to determine whether the dances are performed by definite organizations or merely by a congregation of membership varying from dance to dance. The idea is prominent that some one individual, who has had a corresponding vision, must see to the performance of his particular dance, on pain of being struck by lightning if he failed.

Plate Armor in America, a Sinological Contribution to an American Problem: BERTHOLD LAUFER.

The paper is chiefly intended as a contribution to the much-ventilated question of historical methods applied to ethnology. Plate armor in northwestern America and northeastern Asia was hitherto believed to be due to contact with Japan, and interpreted as having been made in imitation of iron plate armor. From two important passages occurring in the Chinese Annals it becomes evident that bone plate-armor existed among the Su-shên, a tribe of presumably Tungusian stock, in the first centuries of our era, and the conclusion is reached that such armor can not have been made in imitation of Japanese plate-mail, which did not exist at that time. Also in China, Siberia and Korea, iron armor is not very ancient and develops almost contemporaneously with bone armor, which, however, is older than iron plate armor. It is pointed out that plate armor occurred also in western Asia and other ancient culture-groups, contrary to previous opinions, so that the problem is not truly historical, but rather amounts only to a technical question. The imitation theory, therefore, is highly improbable, and the independent origin of plate armor in the north Pacific culture-group must be maintained. Japan has never had any influence on the latter nor on American cultures, and American-Asiatic culture relations and exchanges must be studied in the light of the ancient ethnology and archeology of that region—particularly northern Manchuria and Korea—which remains to be reconstructed in the future.

The Development of Ancestral Images in China:
BERTHOLD LAUFER.

The object of this paper is to show that the so-called ancestral wooden tablets serving at the present time in China for the worship of ancestors have developed from a former and very ancient concept of anthropomorphic ancestral images. The present mode of worship is briefly described, and the coexistence of tablets, conventional paper images and portraits is pointed out. The development of family ancestral worship is traced to the times of antiquity and explained as having its origin in hero and clan-ancestor worship, in the cult of which stone and wooden images were employed. These were, in course of time, transferred to the individual family ancestors. After a clear distinction between gods and ancestors had been reached, the images were reserved for the gods, the conventional tablets for the ancestors who, under the influence of the growing democratic tendency of this institution, themselves became more and more conventionalized.

The Separate Origins of Magic and of Religion:
JAMES H. LEUBA.

Three types of behavior have been developed by man:

1. The mechanical behavior is the method of dealing with things. It implies a quantitative relation between cause and effect.

2. The anthropopathic behavior includes (a) the common relations of men and animals with each other, and (b) those of men with unseen beings. When these beings are gods, we have religion.

The desired results depend upon an agent endowed with intelligence and feeling.

3. The magical or coercitive mode of behavior, in which neither quantitative nor anthropopathic relations are involved. But magic may be used upon a personal agent. In that case the agent is neither prayed to, nor conciliated by offerings, but coerced.

Most of the varieties of magic may be accounted for by the following principles of explanation:

(a) Playful prohibitions. "If you do *this*," say our children, "*that* will happen to you." The "*this*" and "*that*" have usually no logical connection. Playful prohibitions may be taken in earnest and acquire a magical significance.

(b) Threats of untoward happenings made for the purpose of preserving things vital to the life and prosperity of the tribe.

(c) The motive which leads people to make vows.

(d) The spontaneous response of the organism to specific situations. The magical dances had probably this origin.

(e) The deliberate treatment of certain situations according to magical principles, for instance, that like produces like. This source of magic is, of course, relatively a late one, since it presupposes that a principle of magical procedure has been disengaged from magical practices.

With regard to *the origin of science*, Leuba maintains against Frazer, that the ancestor of science is not the magical but the mechanical behavior. The essential presupposition of science is that definite and constant *quantitative* relations exist. The clear recognition of that proposition means, whenever it appears, the death of magic and the birth of science. This fact indicates the opposition of the magical to the scientific attitude.¹

Man and the Glacial Period in Kansas: N. H. WINCHELL.

The paper describes the topographic features of northeastern Kansas, relation of the continental moraine of the Kansan epoch, distribution of human stone implements with respect to the moraine and the terraces. It specially bears upon the patination of the artifacts, as indicative of the glacial age of the agent that formed them, calling attention to the similarity of these specimens to European paleoliths, and enumerating the kinds of implements that carry the distinctive patination, pointing out the succession of cultural stages that preceded the Neolithic and illustrating the contrasts which they present when compared with the Neolithic.

Evidences of Man's Great Antiquity: GEORGE GRANT MACCUDY.

A brief summary of the author's work in Europe during the past season and of the most important recent discoveries: the human remains of a very early type from Sussex; a Mousterian industry associated with a warm fauna (*Elephas antiquus*, *Rhinoceros merckii*, *Hippopotamus*) in the low (fourth) valley terrace at Montières, near Amiens; Torralba, an old camp site near the crest of the Sierra Ministra, Spain, where eolithic and paleolithic implements have been found intimately associated with the remains of *Elephas antiquus* (perhaps also *Elephas meridionalis*),

¹See for developments Parts I. and II. of Leuba's book, "A Psychological Study of Religion; its Origin, Function and Future," Macmillan, 1912.

Rhinoceros etruscus, *Equus stenonis*, and two species of deer; the cavern of Castillo near Puente Viesgo, Spain, with its twelve relic-bearing horizons; Mousterian caves on the Island of Jersey; La Ferrassie, La Combe and Laussel (Dordogne); and the newly discovered cavern of Tuc d'Audoubert (Ariège), with its wall engravings and figures of the bison modelled in clay. The paper was illustrated by numerous lantern slides, for the most part in color.

The Carayan, Caririan, Chavantean and Guatoan Linguistic Stocks of South America: ALEXANDER F. CHAMBERLAIN.

Among the less well-known linguistic stocks of the South American Indians are the *Carayan*, *Caririan*, *Chavantean* and *Guatoan*, the first three of which are entirely, and the last particularly, within the area of modern Brazil.

1. *Carayan*.—The present center of the territory of the *Carayan* linguistic stock is on the Rio Araguaya and its affluents in the Goyaz country, south-central Brazil. The chief "tribes," or rather local divisions, of the Carayá are the Chambioa, the Javahé and the Carayá proper, the last consisting of two "hordes," a northern and a southern. Our best authorities on the Carayan stock are Coudreau, Ehrenreich, von den Steinen, Kissenberth and F. Krause, the most valuable material (a long Carayá vocabulary and one of over 100 words in Javahé) being found in Krause's "In den Wildnissen Brasiliens" (Leipzig, 1911). Coudreau, in his "Voyage au Tocantins-Araguaya" (Paris, 1897) gives a Carayá vocabulary of 380 words. Older vocabularies are given in de Castelnau, von Martius, etc. The family name, *Carayan*, is derived from Carayá, an appellation by which these Indians have long been known. Krause (p. 187) says that the Carayá proper call themselves "käräjä", kärädjá' and also krädjá."

2. *Caririan*.—The territory of the *Caririan* linguistic stock originally included a considerable portion of eastern Brazil, in the provinces of Bahia, Pernambuco and Piauhý, north, south and west of the Rio São Francisco. These Indians were Christianized in the middle of the seventeenth century, but at most a few hundreds now survive in the valley of the lower São Francisco. With the Carirí proper belong also the Sabuyá, who dwelt somewhat further south. Our chief sources of information concerning the Carayan language, besides the older missionaries (Mamiani, de Nantes, et al.), are von der Gabelentz, Galvão,

Platzmann (who have all republished or edited catechisms and grammars of the missionaries), Adam, Ehrenreich and von den Steinen. A Sabuyá vocabulary of over 100 words is given by von Martius. The family name, Caririan, comes from the appellation of the northern section of this stock, which appears variously as Carirí, Cairirí, Cayrirí, Kirirí, etc. The etymology is unknown.

3. *Chavantean*.—The territory of the Chavantean linguistic stock lies in the region of the upper Paraná and lower Parapanema (about 20° s. lat., 52° w. long.), in São Paulo, Matto Grosso and Paraná (Brazil). These "Chavantes" (v. Ihering seeks to call them "Eo-Chavantes") are not to be confused with the Tapuyan "Chavantes," or "Akua," of Goyaz and Matto Grosso. The linguistic material of the Chavantean stock consists of two short vocabularies by T. M. Borba and F. R. Ewerton-Quadros, both of which are reprinted by Professor H. von Ihering, our chief authority, in his "The Anthropology of the State of S. Paulo, Brazil" (2d ed., S. Paulo, 1906). The family name, Chavantean, comes from "Chavantes" (the etymology of the word is uncertain), a term applied to several Indian peoples of this region.

4. *Guatoan*.—The territory of the Guatoan linguistic stock includes part of the northern Chaco and the region about the confluence of the Paraguay and the São Lourenço, particularly the country about Lakes Gaiba and Uberabá. The Gaiba have been visited and described by Kowalsky (1894), Monoyer (1905), Schmidt (1900-01 and 1910). Our chief authority is M. Schmidt, whose interesting book, "Indianerstudien in Zentralbrasilien" (Berlin, 1905), contains a section on word-formation, a long classified vocabulary, some sentences, etc. An older vocabulary of 160 words is reproduced in von Martius from de Castelnau. Schmidt's résumé of his expedition of 1910 is to be found in the *Zeitschrift für Ethnologie* for 1912. The family name, Guatoan, comes from Guató (Vuató, Quató, etc.), the name by which these Indians have long been known. No satisfactory etymology is on record.

Material Relating to Californian Indians in E. Teza's Saggi Inediti di Lingue Americane (Pisa, 1868): ALEXANDER F. CHAMBERLAIN.

Professor Emilio Teza's "Saggi Inediti di Lingue Americane"² is so largely taken up with ²"Saggi Inediti di Lingue Americane. Appunti Bibliografici." In Pisa. Dalla Tipografia Nistri. MDCCCLXVIII., pp. 91.

the consideration of South American Indian languages that the material therein relating to certain Indian peoples of North America seems to have been rather overlooked. Pilling, who, in his "Proof Sheets,"³ cites Teza, observes (p. 754): "Mainly devoted to South American languages; but contains a brief discussion and a few examples of Algonkin and Iroquois, pp. 14-22. Our Father, in Tarasco, pp. 60-62." Through the courtesy of the library of the University of Pennsylvania, Chamberlain has been enabled to consult the copy of Teza belonging to the Brinton collection, once the personal property of that great Americanist. A colophon, at the end, informs us that "the 'Appunti' were published in the *Annali della Università di Pisa*, MDCCCLXVIII., Vol. X.," and that "of this Edition in octavo, to which has been added an Appendix, only LXX. copies were printed, and they are not for sale." It is the "Appendice," occupying pages 77-91 (pages 77 and 78 are blank) of the octavo edition of 1868 that interests us here, for it contains ethnological and linguistic information concerning some of the Indian tribes of California. On pages 80-86, under the heading, "Balli de' Californesi," is printed the Spanish text of an account by "P. Jak" of ball-games and dances of certain Californian Indians. Those mentioned are: "Jumos, apaches, dieguinos christianos, sanluisenos, que somos nosotros, sanjuanenos, gabrielenos, fernandinos; y los de Monte Rey." The Luiseños are said to play well the ball-game of *uauquis*. One game is termed general, and "nostros llamamos tannis, bailar, o mejor dar patadas." On pages 81-84, 84-85, 85-86 are given, respectively, descriptions of the "Primer baile," "Segundo baile," "Tercero baile." A number of Indian words are scattered through these descriptions. On pages 87-91 are given the native texts and Spanish versions of "Versi Californesi"—two poems composed by P. Jak in the Indian language (the translations are also by him). The dialect represented is probably Luiseño.

Pages 22-30 of the "Saggi Inediti" are also concerned with Californian Indian languages, and on pp. 24-26 P. Jak discusses the grammar of Luiseño. On page 23 we are informed that P. Jak had composed a "Prima lingæ Californiensis rudimenta," ca. 50 pages, and containing "a little of everything." The chief source of infor-

³"Proof Sheets of a Bibliography of the Languages of the North American Indians," Washington, 1885.

mation was "a Californian of S. Luis, converted to Christianity," and the thing was done "to please Cardinal Mezzofanti." Teza's whole book, of course, owes its existence to Mezzofanti's linguistic collections.

A Note on Child-invention: ALEXANDER F. CHAMBERLAIN.

That invention (conscious or unconscious) by children, with subsequent adoption by adults of the community, has played a not unimportant rôle sometimes in the development of human culture is a theory known in ethnological literature, especially in connection with the evolution of language (von Martius, Peschel, Farrar, Newell, Hale, Krauss, Sartori, Lasch, et al.). The inventiveness of children in plays and games has also had some influence upon primitive society and even upon its civilized successors. Chamberlain has already discussed some aspects of "child-invention."⁴ Seldom, however, is one fortunate enough to be present when such an addition to the stock of human knowledge is actually being made. The chronicling of such events by travelers and ethnologists among the more or less primitive peoples still in existence is a matter of interest to the historian of human civilization. A curious example of "child-invention" is reported by A. de Calonne Beaufaict, in his recent book of African studies,⁵ in writing about the people of the islands of the Uelé, above the Mokwangu rapids, in the northern Congo country.

After calling attention to the fact that the mentality of these Bakango Negroes is not at all of such a stagnant and passive sort, as, *e. g.*, M. Goffin attributes to them in his "Pêcheries et Poissons du Congo," by virtue of which they "must be incapable of taking advantage of and permanently acquiring for themselves the thousand and one little accidental inventions, which, in normal times, pass unnoticed, but to which every critical period gives a special value," and stating that he has often had the opportunity to observe just such cultural acquisitions, the author says (p. 56, footnote):

"One of the most amusing was the invention by a young Mobenge of a bolas to catch fowl. He was gravely imitating angling, with a stick and a *liana*, to which was attached a corn-ear

⁴See "The Child and Childhood in Folk-Thought" (New York, 1896), pp. 249-269 and 273-275.

⁵"Etudes Bakango" (Liège, 1912). See p. 56 and footnote.

serving for a fish. One of his brothers came running along, in pursuit of the fowl that had to be safely shut up away from the little carnivora. The boy held out his stick, to cut off the retreat of the frightened fowl, which got entangled in the *liana*, fell down, and was captured. Put into good humor by this grotesque accident, the inventor made a second successful attempt. The next evening, the family were supplied with the apparatus; and my *boys* imitated it. And, perhaps, in a few years, some descriptive ethnologist will report that the Mobengé used the bolas, and, from that fact, will infer some ethnological theory as to the origin of the tribe."

This example is of more than ordinary interest, since it involves not merely "child-invention," but likewise transference from one form of culture-activity to another—from fishing to bird-catching.

*Description of the Tsantsa.*⁶ H. NEWELL WARDLE.

A macroscopic description of one of the rare mummified heads of the Jibaros of Ecuador, with considerable detail as to color, form, size and ornamentation together with the weave of the suspension cord.

*The Principles of Limited Possibilities in Ethnology.*⁷ A. A. GOLDENWEISER.

In the present state of ethnological enquiry the reality of convergent developments can no longer be doubted. The actual demonstration of such convergence on general theoretical grounds, therefore, seems highly desirable.

The principle of limited possibilities implies that whereas the origins of cultural processes are innumerable, the processes soon become reduced to a relatively smaller number of types, while the relatively stable products of these processes are strictly limited in number, owing to the play of certain objective and psychological factors. If that is so, there must be convergence. The principle of limited possibilities is thus constituted an *a priori* argument for convergent development.

Three Forms of the Human Nose: ROBERT BENNETT BEAN.

The three most distinct forms of the human nose appear characteristically in different parts of the earth and the forms are clearly geographical, evolutionary and developmental. The first of

the three is the underdeveloped nose resembling that of the infant, and this form has been called by Dr. Bean the Hypo-phylo-morph; the second is a massive nose, the Meso-phylo-morph; and the third is the thin, high, long, narrow nose, the Hyper-phylo-morph.

The Hypo-phylo-morph nose is flat, broad and short, with flat depressed bridge, upturned tip, and the nostrils open forward rather than downward. The nostrils flare and are wide open, and the extremity may be inserted horizontally along the floor of the nasal fossa without interference by the alæ. The nasal ridge, or the bridge of the nose, is flat, because the nasal bones do not form a steep roof over the nasal passages by their opposition along the median line. The articulation of the nasal bones with the frontal bone is a gentle curve and not an abrupt transition. The supraorbital ridges and glabella are not prominent, nor the frontal sinuses large in association with this form of nose, but the cheeks are full, and the eyes prominent, therefore the front of the entire face is somewhat flat, although the lips project from a small mouth. The Hypo-phylo-morph nose is essentially the nose of the infant.

The Hypo-phylo-morph nose is found especially among the Malays and Negritos as they exist to-day in the Malay peninsula, Java, Sumatra, Borneo, Celebes and the Philippine archipelago, as well as among the Pigmies, Bushmen and Hottentots of Africa. It is also found in a modified form in Burma, Siam, Cambodia, Tonkin, Annam, in India, China, Japan, Mongolia and among the true Negroes of Africa and America. The form dwindles away through Siberia, Lapland, Finland and Russia into Europe, where the Hyper-phylo-morph nose appears. The form also dwindles away through the Eskimos and Indians of the Americas, among the Polynesians and the other inhabitants of the Pacific Islands and among the pseudo-negroes of north and east Africa, in all of which peoples the Meso-phylo-morph nose appears. It is most emphatic among the women of all the countries where it appears, but is also to be seen among the men.

The Meso-phylo-morph nose is massive, long and broad, not very high, with apparently depressed root due to overhanging brows and glabella, it has a straight bridge and nostrils that open downward and slightly forward. The outlines of the nose are usually straight. Looked at from in front the lines of contact of the nose with the face on each side are straight, and slant

⁶To be printed in the *Proceedings of the Academy of Natural Sciences*, Philadelphia.

⁷The paper appeared in full in the *Journal of American Folk Lore*, September-December, 1912.

away widely from the inner angles of the eyes to the alæ of the nose. Looked at from the side the bridge of the nose is straight or very slightly aquiline from root to tip, and the lower border (base) of the nose is straight from a point just over the akanthion to the tip of the nose, although the tip may dip below this straight line sometimes. This line is not long in relation to the breadth of the nose, but it is absolutely as long as the same line in the Hyper-phylo-morph nose, and may even be longer when the nose is unusually large. The nose looks flat, due to its great breadth, when it is actually a high nose. The alæ flare little, although the apertures of the nostrils are large, due to the great width of the nose. The nasal bones form a more acute angle at their apposition than in the Hypo-phylo-morph nose, and they pass abruptly above into the frontal bone, where the overhanging brows and glabella give the root of the nose a depressed appearance. The malar and zygomatic bones are large and project, and the jaws are prominent both in front and at the sides of the face. The orbits are large, the bony sinuses about the nose are of great size and the lips are thick. The result is that the whole face is large and the nose conforms with its surroundings.

The distribution of the primary forms of the Meso-phylo-morph nose centers among the inhabitants of the Deccan and Ceylon, among the Polynesian and the inland tribes of the Philippine Islands, Java, Sumatra, Borneo and Celebes, and it assumes its most exaggerated form among the Tasmanians, Australians, Melanesians, pure Negroes and true Negroes. The form exists somewhat modified among the peoples who have the Hypo-phylo-morph nose, and is especially emphatic among the men, although it appears among the women. It fades away through northern Asia, in central Europe, through southern Asia towards the Mediterranean basin and in eastern and northern Africa, at all of which points it merges into the nose of the Hyper-phylo-morph.

The Hyper-phylo-morph nose is long, high and narrow, with high root, bridge and tip, the nostrils flare but little and open almost directly downward. The nostrils may even open somewhat backward in the exaggerated forms, as in the Jew, for instance. The nose appears prominent and may seem larger than it really is, inasmuch as the jaws are not prognathous, and the brows and glabella do not overhang the nose; the forehead and chin may even recede, leaving the nose pro-

jecting from the middle of the face. The nose may be retrousse, straight, sinuous or aquiline. The retrousse seen chiefly among women, is the underdeveloped, whereas the aquiline, seen chiefly among men, is the exaggerated form of the Hyper-phylo-morph nose. Associated with this form of nose is the long, narrow face and the long, high, narrow head. The distance from the external auditory meatus to the tip of the nose is greater in this form than in either of the others, and this projection of the nose to a pointed tip in association with the high, narrow forehead and pointed chin give the characteristic appearance called by the Australians in derision, "the hatchet-faced Englishman."

The most representative types of the Hyper-phylo-morph nose in its primary form are found in northern Europe, Great Britain and America, among the tall blond Nordics, and this form of nose has been modified around the Mediterranean, where it is extremely fine and thin. Its most exaggerated forms are to be seen among the Jews, Arabs and Gypsies. It is found more or less modified in Asia and Africa along the course of four streams of infiltration. The most intense forms (the most perfect) are in southern Asia and northern Africa, the least intense in northern Asia and eastern Africa. The American Indians present a Hyper-phylo-morph nose of an intermediate form between that of the extreme Meso-phylo-morph and the primary Hyper-phylo-morph. The characteristic Hyper-phylo-morph nose dwindles in purity and frequency through southern Asia and northward through the hearts of the large islands of the Pacific among the inland tribes, except among the Tasmanians, Australians and Melanesians, to the inland tribes of the Philippine Islands, and eastward into Polynesia; through northern Asia into China and Japan, where in the latter place the nose is similar to that of the Mediterranean peoples; through northern Africa into the Soudan to the Guinea coast; and through eastern Africa to the Congo and along the south and east coasts up to the Guinea coast and the Congo again. The peoples who have this form of nose in greatest purity may be enumerated as follows: Danes and Scandinavians, North Germans, British, American whites in the United States and Canada, Spanish, Portuguese, some southern French and Italians, Greeks, Turks, Arabs, Jews and Gypsies. Those peoples among whom modified, yet fairly typical, forms are frequent are: East Indians, Iranians and Turanians,

North and East Africans, Europeans other than those previously mentioned, Chinese, Japanese and Thibetans, Polynesians and Micronesians, and the inland tribes of the great islands of the Pacific, Java, Sumatra, Borneo, Celebes and the Philippines.

The three forms of the nose may appear pure among any people, and in differentiating the three forms in any locality I use the terms Hypo-onto-morph, Meso-onto-morph and Hyper-onto-morph, because in every individual it may not be clear that the form of the nose is due to evolution—it may be developmental. The -onto-morph noses are not so strikingly different as the -phylo-morph forms, but in any case the Hypo-onto-morph resembles the Hypo-phylo-morph, the Meso-onto-morph resembles the Meso-phylo-morph and the Hyper-onto-morph resembles the Hyper-phylo-morph.

The Nose of the Jew and the Quadratus Labii Superioris Muscle: ROBERT BENNETT BEAN.

The peculiar position of the Jew for centuries may account for the origin of the Jewish nose. The shape of the nose depends upon inherent and extraneous influences. The latter do not concern us at present. Of the inherent influences, alterations in the bones of the head and face cause changes in the shape of the nose; increased vascularization of the nasal mucous membrane and the erectile tissues of the nose, as in continued excessive sexual indulgence, may alter the shape of the nose; and the muscles attached to the nose may change its form.

The quadratus labii superioris muscle has four parts, all of which center around the alæ of the nose and the base of the upper lip, and from there they radiate towards the eyes in the shape of an imperfect fan. The two extremities of the fan are attached, the one at the root of the nose, the other to the ventral surface of the malar bone. The part of the quadratus muscle attached to the nose is called the angular head, which has two slips, one rising from the nasal bone and inserting into the cartilage and tissue about the ala of the nose; the other rising from the upper part of the nasal process of the maxilla near the inner canthus of the eye and inserting into the skin and fascia at the base of the upper lip midway between the center and the side of the mouth. The angular head has been called the levator labii superioris et alæque nasi muscle, a term that expresses its action. The muscle slips pull the ala of the nose upward and backward, depress the

extremity of the nose and help to elevate the upper lip and deepen the naso-labial groove. The two remaining portions of the quadratus muscle are called the levator labii superioris and the zygomaticus minor, which form the infraorbital and zygomatic heads, respectively. They rise from the maxilla and malar bone beneath the orbicular muscle and are inserted into the skin and fleshy part of the upper lip near the corner of the mouth. They pull the upper lip upward and backward and deepen the naso-labial groove. Deepening of this groove gives an expression of sadness, which is intensified by sorrow or grief. Assisted by the great zygomatic muscle and the caninus, the quadratus draws the tissues covering the chin upward and backward, pulls the corner of the mouth in the same direction and deepens the naso-labial groove. This sharpens the chin and makes it appear to tilt upward in the form of a beak. The depression of the point of the nose tilts this member downward and gives it the appearance of an inverted beak. The mouth is at the same time drawn back, and the double beak becomes more emphatic.

The quadratus muscle is said to produce expressions of the face that indicate a great variety of emotions, all of which may be grouped as related to indignation. It is essentially the muscle of disgust, contempt and disdain, which lead to scorn, acknowledging guilt. Discontent follows, with a snarl, sneer and defiance; after which come bitterness, and a menacing attitude, with pride. Indignation, anger, rage and hatred rapidly succeed each other. This complex of emotions may be superseded by sadness, grief or sorrow. That one small muscle group can express so many emotions is almost inconceivable, but upon intimate analysis the nineteen words used to enumerate the emotions expressed by the quadratus muscle are related, or proceed the one from the other in natural sequence.

The expression of the Jew is that which would result from very strong contraction of the quadratus muscle. The nose is depressed, and this is so marked that often an obtuse angle is made at the junction of the cartilage and nasal bones, which leaves the cartilage slanting very little and at times vertical. The nose of the Jew is large, and the depression of the tip increases the prominence of the bridge and adds to its apparent size. The ala looks pulled upward and backward, a furrow is seen around the ala and the naso-labial groove is deep. The upper lip and the corner of the mouth appear pulled upward and backward

and the tissues of the chin are drawn, giving the beaked look. This characteristic is not well marked on all Jews, being more emphatic on some than on others; it is also to be seen on those who are not Jews, but it is more pronounced on Jews than on other peoples, and that it is a Jewish feature can not be doubted. Having become a recognizable characteristic, it was used in sexual selection. Those who showed it most strongly would be selected in marriage by the most orthodox, and would transmit a natural endowment to their offspring. Those who gave less evidence of it might marry outside of the race. In this way the feature became fixed, and it is as much an inheritance as any other characteristic. The peculiar position of the Jew for centuries may account for the origin of the Jewish nose.

The papers read of which the secretary was unable to obtain abstracts were:

Abnormal Types of Speech in Nootka (to be published by the Geological Survey of Canada): EDWARD SAPIR.

Paiute and Nahuatl: A Study in Uto-Aztekan (to appear in the *Jour. de la Soc. des Américanistes de Paris*): EDWARD SAPIR.

The Individual Totem among the Interior Salish: C. M. BARBEAU.

Some Comparative Aspects of the Wyandot Language: C. M. BARBEAU.

Magical and Religious Factors in the Development of the Human Will: FELIX KRUEGER.

Fallacious Estimates of Prehistoric Time: G. FREDERICK WRIGHT.

The Father and Son Combat in British Balladry: PHILLIPS BARRY.

The following papers were read by title:

Social Organization of the Menominee: ALANSON SKINNER.

An Archeological Survey of New Jersey: ALANSON SKINNER.

Pigmentation and Longevity: WM. C. FARABEE.

Numerical Systems of Campa and Pano: WM. C. FARABEE.

The Japanese New Year: MOCK JOYA.

What is the American View of Totemism: CHARLES HILL-TOUT.

Preliminary Report on Excavations in Southern France: CHARLES PEABODY.

Dr. Peabody preferred to give his time to the reading of Dr. Lomax's presidential address.

GEORGE GRANT MACCURDY,
Secretary

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SOCIETIES AND ACADEMIES

THE ANTHROPOLOGICAL SOCIETY OF WASHINGTON

A SPECIAL meeting of the Anthropological Society of Washington was held January 7, 1913, in room 43 of the new building of the National Museum, the president, Mr. George R. Stetson, being in the chair.

Mr. E. Dana Durand, director of the Census, read an important paper on "Race Statistics of the Last Census," replete with interesting facts. Mr. Dana said, *inter alia*, that during the decade 1900-10 the white population of the United States increased about 22 per cent. and the negro about 11 per cent. This difference is partly due, however, to the direct or indirect effect of immigration of whites, in the absence of which the whites would have increased about 14 per cent. The Indians increased about 12 per cent., the Chinese decreased in number, while the Japanese nearly trebled. The whites have at practically every census shown a more rapid rate of increase than the negroes, and there is reason to believe that the difference between the two races in rate of increase from 1890 to 1900 was greater than appeared from the census returns, on account of a probable underenumeration of the negroes in 1890. The census of 1910 showed that about 21 per cent. of the negroes are mulattoes, as compared with about 12 per cent. in 1870, the last preceding census at which the question regarding blood mixture was asked in comparable form.

There has been no very great migration of negroes out of the south, nearly nine tenths of the total number being still found in that section. The number living outside the south increased 167,000 between 1900 and 1910, while the number residing in the south increased over 800,000. The rate of natural increase—that is, by excess of birth over deaths—of the white population of the south, however, is much higher than that of the negroes, being higher also than that of the whites in the north.

Among the native white population whose parents were born in this country, there were, in 1910, 104 males to each 100 females, as compared with only 98.9 in the case of the negroes. Among all classes of the population more boy babies than girl babies are born, but equality tends to be brought about by a higher death rate among the males. The difference in sex distribution between the whites and the negroes is probably attributable, in part at least, to more favorable health conditions among the whites.